Becetel combines more than sixty-five years of expertise, independence and extensive testing facilities, which is unique in Europe. A wide range of companies, organisations and certification bodies call on the services of this ISO 17025 accredited laboratory for testing plastics pipes and fittings.

The **Be**lgian **Ce**ntre for **Te**chnologica**l** Research on Pipes and Fittings started as a spin-off of Ghent University. By now, it has grown into a test laboratory with international allure. “We limit our field of activity to testing plastics pipes and fittings,” says general manager Joris Vienne. “Things however changed over the years. In our early years there was only PVC, today a wide range of plastics is used in piping. Initially we only worked with materials for water, gas, drains and sewers piping systems. Today, you can find plastics piping in all utilities, industrial processes, rainwater infiltration, waste water treatment and construction… By participating in international symposia, training and research, our knowledge also evolved. As a result, Becetel has become one of the few laboratories with extensive knowledge in this specialized field – something highly valued by our customers, most of whom are based outside Belgium. With the evolution of PE 100 to ‘slow crack growth resistant’ PE 100-RC materials, Becetel has also invested in specific testing equipment for this new generation of materials.”

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From knowledge to equipment

Becetel always proactively translated its knowledge into test equipment. “We continuously invest in new solutions”, says Vienne. “Thanks to our in-house expertise and creativity, we regularly succeed in creating our own solutions. For example, we have our own installations for the accelerated Notch Pipe Test (aNPT), the Plain Strain Grooved Tensile (PSGT) test and various creep tests. These solutions are developed either in cooperation with equipment suppliers or in our own mechanical workshop. We also gained experience in performing complex cyclic pressure tests. A recent acquisition is a Cracked Round Bar (CRB) testing machine for the determination of slow crack growth of PE, PP and PA-U.”

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Fully equipped lab

Of course, Becetel has a lot of other test infrastructure: large water tanks for hydrostatic pressure testing, pressure stations, universal testing machines with load ranges from 0,5 kN to 400 kN and equipped with extensometers (contact and video non-contact), temperature chambers, impact testers, pressure cycling units, data-logging equipment, ultrasonic thickness gauges, hardness testers, flow meters, fusion machines, torque wrenches, dimensional measuring equipment, height and strain gauges, thermocouples… “We have a temperature conditioned lab for the dimensional measurements, creep testing and multiple universal testing machines for determination of tensile, flexural and compressive properties,” Vienne explains. “In our multifunctional hall we perform, among others, hydrostatic pressure tests, impact tests, leak tightness tests, temperature cycling tests and rapid crack propagation tests. There is also a lab for physical properties, such as MFR, DSC, Vicat, thermal stability testing, IR analysis… And microscopic facilities for failure analysis. We can handle various pipe diameters, from 8 till 2000 mm. Many of the tests we perform fall within our ISO 17025 scope of accreditation (Belac 181-Test).”

New Differential Scanning Calorimeter (DSC), model DSC3 from Mettler Toledo. © Becetel

International activities

Today, Becetel mainly performs mechanical tests on plastics pipes, including fusion joints, connections and accessories. “We have gained an extensive experience in performing rapid crack

propagation (RCP) tests, formerly with the full-scale test site and since decades with the S4 (Small-Scale Steady State) test," says Vienne.

Furthermore, Becetel developed software to perform the Standard Extrapolation Method analysis described in ISO 9080. "Because we have built or modified some of our testing equipment ourselves, we can even perform tests that fall outside the standards. We also gained experience in the testing of elastomers (ageing, compression set…). Becetel also acts as a partner in various standardisation and certification systems and we are actively involved in the international standardisation committees of CEN and ISO. It is regularly called in as an expert in the event of claims related to failures in plastics."

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